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Art. I. *On the Genus Rosa, of the Natural Order Rosaceæ.*

By Professor John Lewis Russell.

There is associated with this interesting flower, an almost indescribable and instinctive feeling of real, refined pleasure, which scarcely any other, the humble violet excepted, can awaken within us. The Rose — the first glorious harbinger of joyous summer, and the lingering blossom of its sunny months; the Rose — whether wild or cultivated, single or multiplex, rambling and climbing in vagrant festoons over the thicket and rude stone-wall, or prim and upright, under the tutoring management of the curious and fastidious florist's hand, and rendered by the wonderful transmutations of scientific skill, the pride of his garden and heart; or the Rose beneath the window of the snug farm house, cultivated to afford a Sunday bouquet, or for its more valued worth in the simple pharmacopœia of village medicine of "healing herbs;" in every situation, and under every circumstance, it is decidedly the most universal favorite flower. Attracting the attention of mankind at an early age of the world, its exquisite beauty, delightful fragrance and many virtues, have immortalized its simple name in song, and immortalized it by connexion with the glorious, the beautiful, the lovely and the good, in nature and society. Who has not admired the elegant freedom of the sweet-briar, — its pale, simple blossoms, five delicate petals, and numerous stamens of rich gold, throwing up in a single season, a vigorous and pliant stem of six or seven feet, well secured from too rude an attack on its beauty, by strong bent prickles; and even in mid winter lending its aid, by its bright scarlet fruit, to grace the magnificence of

that frigid scene? And who, that has not gazed with wonder on the splendid productions of the florist's garden, indebted to the magic power of the Rose, for the charms of flowery June?

Interesting, therefore, as is the Rose to memory, taste, a love for rural scenery, or the triumphs of the garden, not less so is it to the student of the vegetable structure. The figurative language of Oriental description, the poetic beauty of the sacred scriptures, may have effected much in exalting its merits; even the envious distinction to blush, and bloom, and fade, as an ornament to human beauty yet more evanescent, though real, — the beauty of mind, beaming forth in matter, — of the imperishable soul in perishable physical structure, may have added to its charms, still the Rose, specifically and distinctively considered, has claims on our attention and study.

The Rosaceæ, of Dr Candolle, embraces a great variety of the most valuable as well as elegant individuals of the vegetable kingdom. They are the Icosandrian plants of Linnè, and are embraced under the fragments of his thirtyfifth and thirtysixth natural orders, *Senticosæ* and *Pomaceæ*. The combined elegance of this great natural order, induced one writer* to assign to them, as one individual group, the name of *Calophytes*, "plants of beauty."

Lindley has separated the fruits, technically so called, under the title Pomaceæ, and other botanists have subdivided this into types and subtypes, Pyraceæ, Prunaceæ, &c.

The number of species of roses, has been computed as upwards of two hundred, with almost numberless varieties from cross-impregnation and accidental variation. Inhabitants of every part of the world, with the exception of South America, they administer to the comforts and luxuries of man. Several attempts have been made to divide into distinct genera, so great a number of individual plants, differing from each other in many particulars, yet singularly uniting in the most important, the structure of flower and fruit. Everyone must have been struck with this, from such a cursory view as may be afforded, in comparison of the native Roses of North America; — the hardy and firm wood of the upright garden varieties; the smooth green stems of the Chinese and Indian, the flexible spines of the Moss Roses, and the still more singular organs of glandular secretion which invest their infloresence. Most of them are effectually armed with sharp aculei, ferociously bristling in "*Rosa ferox*," whence its savage, trivial name; like reflexed and extended claws on the native briars, "*R.*

* Bartling.

rubiginosa," or on the foreign white rose, "*R. alba*"; and investing stem, branch and petiole in the "*R. spinosissima*," from which we have the charming varieties commonly known as the Scotch roses, so early, so productive, and so fugacious. "*R. Banksia*," is as singular for an entire want of such armature, and "*R. rubifolia*" of the West, so much resembles the Bramble, (*Rubus*) as to derive from that circumstance its specific cognomen.

The leaves of the Rose are compound and stipulate, and though the leaflet may materially differ in form and size, yet such is their general character. One very remarkable exception is known, a native of the north of Persia and the desert of Songari, in Chinese Tartary. In this species, we have simple leaves, destitute of stipules, and hence Lindley saw proper to form a new genus under the title of Lowea. This remarkable abnormal deviation from the general structure of the foliage of the Rosaceous plants, is peculiarly interesting as well as remarkable. In the Botanical Register (1261) may be found a figure, and some important observations. The structure of the flower is that of a veritable Rose, while its foliage presents the anomaly of a simple leaf, and not the appearance merely of such an organ by the abortion of every foliole, the terminal excepted; for there can be traced no sign of articulation with its petiole, which should be present were that the case.

The "*Rosa multiflora*," so distinguished as a foreign variety of climbing Roses, is likely to meet with a compeer if not a rival, in a semi-double variety of our "*R. rubifolia*," the vigor and luxuriance of which, as a species, is so well known. A native seedling of the above description was shown me last summer, found on an island in the Ohio River, but not being in blossom, I could only trust to the account of my informant for the splendor of its flowers. Should this prove permanently a multiplex variety, it must take the place of the *multiflora* for outdoor culture, being perfectly hardy. And should it not rival the far famed wonders of the *Greville* of notorious repute, yet the patriotic love for native merits, will undoubtedly do much to introduce it to favor.

The facility with which the Rose is cultivated, renders it within the power of everyone to increase his collection of its choice varieties. I know not whether budding is so much practiced by our florists in this country, as it appears to be in Europe, judging from the plants sent to, or imported by, our cultivators; but I trust that I shall be excused for suggesting what is new to me, though perhaps well enough known to those who have attended more fully to the manual

operations of the science of Floriculture, relating to that easy and oftentimes only available method of procuring or saving a rare variety. Late in the summer of last year, I inserted into the stems of the "Maiden's blush" Rose, several buds of curious new varieties, which I did not before possess. I found considerable difficulty in properly lifting the bark, by the usual cut of the T, and had recourse to an experiment of cutting off the head of the stem, then opening the bark by a longitudinal incision and pushing down the bud. After securing it in the usual method, I was surprised at the rapidity of granulation and union of bud to stock, and the superior growth of the evolved branch over those inserted in the ordinary way. It will be perceived that this was, in effect, grafting under the bark as used with scions of the pear, with this difference, that the scion of the pear may have several eyes, whereas, this was but a thin longitudinal section of wood and bark and *one* eye, such as is always used in ordinary budding. The success of the operation has suggested to me the expediency of a more extensive experiment next Spring, and trusting, if not known or practised, it may be interesting to the florist, I have ventured to lay it before you, while a zeal to advance the good of Floriculture will excuse my error, if any has been committed through ignorance.

The fruit, or seed of the Rose, is an achenium, contained within the enlarged and juicy urceolate calyx. In sowing these seeds for new varieties, they are sometimes separated, and sometimes the calyx or *hips* are simply bruised. Perhaps were each hard, stony seed punctured, or a small aperture otherwise made, opposite, or not interfering with the embryo, they would vegetate much sooner than they ordinarily do, and thus facilitate their reproduction.

ART. II.—*On the Selection of Hardy Herbaceous Plants, suitable for Ornamenting the Parterre, Border or Shrubbery.* Communicated by Mr JOSEPH BRECK.

(Continued from page 60.)

MANY of our beautiful native herbaceous plants are almost wholly neglected, that deserve more particular attention, which, if introduced into our pleasure grounds and borders would greatly add to their beauty and interest. We see and admire them in their natural habitats, but do not seem to realize, that if transferred to our gardens

they would flourish with increased splendor. There are some, I know, that appear to defy the art of man, and dwindle and die under his fostering hand, and seem destined to "waste their sweets upon the desert air." Among these are the beautiful family of Gerardias, containing four or five interesting species.

I have repeatedly taken them from the forest with all possible care, and done my best to make them thrive, but all in vain. I have succeeded no better in my efforts to raise them from seed. But it is not so with the beautiful plant that ornaments our brooks and rivulets in the months of July and August with its unrivalled scarlet blossoms. This is *Lobelia cardinalis*. It is a mistaken notion that it will not flourish only in wet ground. I have taken it up when growing in water and planted in a soil, that was far from being moist, with good success. It was introduced into England in 1629, and to this day is duly appreciated. Justice, who published a work on gardening in 1754, in describing it, says; "It is a flower of most handsome appearance, which should not be wanting in curious gardens, as it excels all other flowers I ever knew in the richness of its color."

"Its generic name is in honor of M. Lobel, author of various works: he was born in Lisle, in 1538, became physician and botanist to James I., and died in London in 1616." The genus is known by its five cleft calyx; its irregular corolla; the tube slit on one side of the limb, two lipped and three parted; anthers cohering, and somewhat curved; stigma (the summit or extremity of the pistil) two lobed; capsule two or three celled, two valved at end. Class, Pentandria, (five stamens); Order, Monogynia, (one pistil); natural order, Campanulaceæ.

This large genus contains more than eighty species. The predominant color of the corolla is blue. The most desirable for the border that are much known, are *L. cardinalis*, *siphilitica*, *fulgens*, *splendens* and *speciosa*. The three first will stand the winter very well with some protection; but the two last must be potted in the Fall, and kept in a frame, or in the cellar, and planted out in the Spring.

Lobelia cardinalis has an erect stem three feet high, with broad, lanceolate, serrate leaves; flowers in terminal spikes pointing one way. The roots of all the above named species are composed of many white fleshy fibres.

L. fulgens. The fulgent cardinal flower, is a native of Mexico, and was introduced into England in 1809. Leaves narrow lanceolate, toothed, revolute at the edge; stem pubescent, (downy) three feet high; its bright scarlet flowers in terminal racemes.

L. splendens. The splendid cardinal flower is also a native of Mexico, introduced into England in 1814. Leaves narrow lanceolate, toothletted (furnished with little teeth), flat at the edge; stem quite smooth, three feet high; flowers brilliant scarlet in terminal racemes.

L. speciosa. The shewy cardinal flower, "is a new and very late introduced variety; it was found growing among the other varieties, in a flower border in Scotland, and is supposed to be a hybrid between siphilitica, and either fulgens or cardinalis; its rich purple blossoms form a fine contrast with the bright scarlet ones of the other varieties." The leaves like fulgens; stem also pubescent.

L. siphilitica. The blue cardinal flower is a native of Virginia, and introduced into England in 1665. "It has its specific name from its supposed efficacy in the cure of the siphilis, among the North American Indians. Sir William Johnston purchased the secret from them, but Woodville says its virtues have not been confirmed by any instance of European practice." Stem erect, simple, hirsute (covered with stiffish hairs,) two feet high; leaves lanceovate, sub-serrate; raceme leafy, with flowers of a bright sky blue; calyx hirsute, with reflexed sinuses.

The treatment is the same for all those enumerated. I had them in great perfection the last season, having a soil and situation well adapted for their growth, with a little preparation. The soil naturally is a black heavy loam, upon a clay and gravel subsoil, a little springy, and never very dry. On the spots designed for their location, I threw four or five shovels full of river sand, and two of partly decomposed night soil compost, and had it thoroughly incorporated with the soil, for two feet round, which made it quite light, and placed the plants in the centre. They began to flower in July, and continued to throw up vigorous stems with an abundance of flowers, until October. Their growth was so luxuriant that it was necessary to tie up to slender rods stuck into the ground, a number of times to prevent them from being broken by the wind. Cardinalis and fulgens were more than three feet high: the others between two and three feet. They may be easily propagated, by laying the stems in July and August, or dividing the roots in the Spring.

"Van Mons observes, that *L. cardinalis* perishes in sandy soil, but becomes strong and multiplies in loam, while at the same time, it produces the most brilliant colors in the former.

The same thing may doubtless be predicted of the other species;

it being a well known law of nature as to living beings that their energies are concentrated in proportion to the obstacles thrown in the way of their expansion."

The following account of the cultivation of *L. fulgens* is from Loudon's Encyclopædia of Gardening; the same treatment with the other species will undoubtedly produce the same effect.

This plant has assumed a character of uncommon magnificence, under the management of Hedges, which is thus detailed by Sabine: "In October, he takes off the suckers, which are thrown up from the roots of the old plants, and puts them in small pots, one in each pot, and keeps them in a cold frame, until the middle of January. He then removes them into a cucumber frame, when the heat is kept up to 65 degrees of Fahrenheit's scale, by linings of hot dung; a pine succession stove of the same temperature, will equally suit them. In the middle of February they are shifted into pots a size larger, and at the end of March or the beginning of April they are again moved into larger pots, and in the middle of May they are the third time shifted; the pots to be used for this last shifting are twelves. As soon as the plants are well rooted, after the last removal, they are carried into a peach house or green house, in which they continue until they flower and are hardy enough to bear the open air. When they are preparing to throw up their flower-stems, and during their growth, it is necessary that they be kept very moist, which is effected by putting pans under the pots, and keeping the pans constantly filled with water. The plants thus managed, begin to flower early in July, and the spikes continue to blow and are covered with flowers through the Autumn. The compost used in the pots is formed of equal parts of brown or yellow loam and leaf or bog mould, to which is added sand, equal to one fourth of the previous composition, the whole being well mixed together."

The following are the dimensions of a plant managed as above directed: "The base of the stem was near six inches in circumference; the height of the centre spike was five feet and a half; the shoots from the bottom and sides of the main stem were in number seventeen, rising together round the principal stem to the height of about four feet and a half. Hedges states, that the plants were, in the two preceding years, much taller than that now described. Some few plants were observed to be rather shorter, and to have a more bushy appearance; this is produced by stopping the centre stems after the last shifting, by which the side shoots become more vigorous

and fuller of flower, and in this state they form handsome companions to the flowering plants of *Campanula pyrimidalis*, whose beautiful spikes of blue flowers agreeably contrast with the brilliant scarlet of the Lobelia."

Lobelia inflata, or bladder-podded Lobelia, is probably familiar with every one, at least its name. Its virtues are so highly praised by some, that we are almost led to suppose, that it is a sovereign remedy for all diseases that flesh and blood are heir too. Lobelia, hot-drops and steam, work wonders. This plant has become so notorious, that fields of it are cultivated by the Shakers at Harvard. Small fields, I ought to say, but enough, in all conscience, one would suppose, to throw the whole country into a vomit. The plant is an annual of not much interest, with small blue flowers, and inflated pods or seed vessels, common in dry pastures and road sides. The whole plant is a violent emetic.

Lobelia spicata. Synom. pallida. A beautiful indigenous species, common in most pastures and by the road sides, with lively pale blue flowers in long terminal spikes, in July. Stem upright, smooth, a little hairy, one and a half foot high. Leaves spatulate, obtuse at the end, tapering at the base, slightly toothed or crenate, pubescent at the edge and underside, sessile. I have never seen this species cultivated, but have no doubt but what it would be very much improved, and prove a valuable acquisition to the border.

L. amœna is a desirable species, found in the Southern States, and not in collections with us. It is represented as having a many flowered one sided spike of beautiful blue flowers; stem erect, very smooth, three feet high ; leaves broad, lanceolate, serrate ; divisions of the calyx entire ; inferior divisions of coral ovate, acute. It would probably endure our winters as well as fulgens with protection.

L. dortmanna. Water Lobelia. "From Dortman an apothecary, who first sent it to Clusius. A beautiful aquatic, with leaves reflected into an elegant curve at the end, and the fine blue flowers in loose spikes." This plant would be suitable to ornament the aquarum, or pieces of water, where introduced into the garden. Bigelow gives the following minute description. "Leaves linear; two celled, entire, stem nearly naked. A very singular aquatic plant. The leaves grow in a single tuft at the bottom of the water. They are from one to three inches long, recurved, blunt, and of a fleshy appearance. On cutting them across, they are found to consist of two empty parallel tubes. The stem rises out of water, bearing a few remote pendulous

flowers, of a pale blue color. Segments of the calyx acute persistent. Tube of the corolla prismatic, its segments lanceolate. Capsule superior and inferior, tipt with style, two celled. Seeds numerous, ovate, compressed, black. The whole plant gives out a milky juice on being broken. Found in Fresh Pond (Cambridge,) July.

L. verbascifolia. Mullen leaved Lobelia, is a tall species six feet high, from Nepal, said to be hardy. It is not in any collection in this vicinity to my knowledge; but would be a valuable acquisition to the border or shrubbery. It has coarse rugose leaves, and a long spike of fine red flowers.

L. tupa, is a splendid gigantic species from Chili, but probably too tender for open ground cultivation, unless kept through the winter in the green house. I have seen it in flower, and thought it was exceedingly rich. The flowers are brilliant orange scarlet, and when in perfection eight feet high.

[For the Horticultural Register.]

Art. III.—*Leaf from the Diary of a Naturalist.*

It was a delightful afternoon for a winter's day, such as often precedes more inclement weather, and closes long and unpleasant storms of wind and rain, that I walked out on the bare and rocky hills near S——, to mark the progress of the season, and enjoy the pure fresh air. The deep snow had melted from the hill-sides, and lay only in drifts in the ravines, while the dark rocks were yet dripping with the effects of the late thaw. But nature was shining in her accustomed beauty, and presented to the sensitive mind, impressions at once delightful and instructive. I found myself not the only admirer of this bright gleam of sunshine and beauty. A little insect, of the elegant family of *Chrysomeliadæ*, I observed near a green tuft of moss, apparently crawling forth from a long wintry sleep of many weeks, and wondering at the mild, bland weather which had visited his tenement. The moss and the insect I regarded with pleasure, and could not help reflecting on the innumerable sources of instruction and delight, which are everywhere perceivable. As I passed onwards, other and different species of Cryptogamic plants presented themselves, — feathery Filices, velvet or silken Musci, coriaceous and curiously tinted Lichens; the withered stems of the past glories of more gaudy

flowers, the singularly fantastic, or elegantly developed spray of some noble tree, the evergreen, unfading richness of the hardy Pines.

And, reader! I gathered botanical specimens for my further observation and study, living and growing specimens, on the 12th of January! So early in the season of the new year, the "Polytrichum commune" had assumed its silken tufted calyptra, and elevated its delicate fruit stalk to half its natural developement. I had never seen it in this state so early before, although one of the first mosses which evince renewed vitality. And there were its deep green leaves saturated with moisture, and expanded in perfection, its starry, barren perichœtia on one stem, and fertile thecæ on another, with an occasional intruder of a singular stalk of "Cenomyce pyxidata," with its tiny vegetable cups for invisible fairies, and such like mimic, mirthful gentry of ancient days. A Lycopodium, with its axillary conceptacles shining like particles of golden dust, seemed reviving to the kindly influence of moisture, and lent its aid to amuse a few idle moments at home, in the use of the microscope.

Do not a few hours of sunshine and mild air in mid winter, give us some faint idea of the beauty of an arctic spring? Methinks the transition from intense cold and barren snow covered plains, to the vivid green of the shooting moss, or the renewed growth of the gray but useful Lichen, and then the intensely colored flowers which thrive best in such short summers, must possess a thrilling interest. Even a Canadian spring is wonderful in its developement, and we can scarcely believe, that ten days past the earth was clothed in virgin whiteness, which now is breaking and budding forth into living green.

"Mysterious round, what skill, what force divine,
Deep felt, in these appear — a simple train,
Yet so delightful mix'd, with such kind art,
Such beauty and beneficence combined;
Shade unperceived, so softening into shade;
And all so forming an harmonious WHOLE,
That, as they still succeed, they ravish still."

J. L. R.

Art IV. *On the Formation and Structure of Buds.* Communicated by Mr Joseph Breck.

At this season of the year, when vegetation is suspended, and the earth is clothed with its fleecy vesture of snow, there is but little to interest the casual observer; yet the lover of nature will always find something to gratify the inquiring mind. Who that has considered the formation and structure of buds, and examined their various appearances in their dormant as well as in their progressive state, by the aid of a microscope, but will acknowledge the wisdom and contrivance of nature's God, and confess that in this, as in all his works, however insignificant or unnoticed they may be, his power, wisdom and goodness are wonderfully displayed.

Various have been the theories of distinguished vegetable physiologists concerning the formation of buds; and although their structure has been examined with much attention, yet little was known of their physiology until the experiments and observations of Knight were made known to the public. Some have supposed they were originated in the bark, while others have contended that they spring from the medulla or pith, and that every bud may be traced by a white line through every concentric layer of the wood, till it touches the medullary sheath. "If this were true, buds must be preorganized germs, and can be deposited only in the first year's growth of the stem or branch." Mr Knight has established the doctrine that they are generated in the alburnum or sap-wood. He says, "I am much inclined to believe that they are generated by central vessels, which spring from the lateral orifices of the alburnous tubes." "By interrupting the circulation in the alburnum, buds may be artificially produced; and nature has provided means for their reproduction, in those cases where they may have been accidentally destroyed. Several curious facts on this subject may be obtained by an examination of the potato, which, like other tuberous roots, are studded with them."

How buds are formed, we must leave to those who have devoted themselves to the subject. To trace so wonderful an operation of nature, requires a perfect knowledge of vegetable physiology, close attention, and powerful magnifying instruments; and even then, who can comprehend or explain all the mysteries that are progressively developed in what is called a simple bud.

Buds are formed the summer previous to their expansion, in the axil of the leaves, with the exception of the terminal ones, or those

formed on the roots which produce suckers. "By the aid of the lens the rudiments of the bud may be perceived in the axil of about the third leaf in the succulent stem of the common lilac, in early spring, when just expanding its leaves. As the bud advances in growth, it gradually assumes somewhat of a pyramidal form; and the organization of the germ, or new branch and leaves within it, commences. Towards the end of summer, the lobes begin to appear as opposite scales, from amidst which the apex of the germ, covered by other scales, is observed obtruding." "The progress of the organization advances a little in autumn; but is not perceptible during winter, and it is not until the following spring that the embryon branch is very conspicuous. As the season advances, the bud lengthens, and at the moment of its opening, the young branch is seen projecting, clothed with its leaves, which, gradually unfolding themselves, display in their axils the rudiments of future buds, destined to run the same course, and become in turn the parents of another series."

Buds are of two kinds—leaf buds and flower buds. Those that produce leaves are generally long and pointed, but assume various shapes, according to their internal arrangement. The flower buds, with the exception of those in aments, are mostly short and round. Each leaf bud may be considered a distinct individual, containing within itself the rudiments of a branch or tree, which, if planted in the earth under favorable circumstances, will develope itself as such; or it may be transferred to another tree, as in the well known process of budding, by which the stock is converted into a tree, possessing all the peculiar qualities of the parent tree from which the bud was taken. Those who have performed this interesting work, cannot but have noticed how easy are the operations of nature in producing the union between the stock and bud. Mr Knight states that "a line of confused organization marks the place where the inserted bud first comes in contact with the wood of the stock, between which line and the bark of the inserted bud, new wood, regularly organized, is generated. This wood possesses all the characteristics of that from which the bud is taken, without any apparent mixture with the character of the stock in which it is inserted. The substance which is called the medullary process, is clearly seen to spring from the bark, and to terminate at the line of its first union with the stock."

The analogy between buds and bulbs is so close, that some physiologists arrange them together. Some herbaceous plants produce true bulbs in the axil of their leaves, as may be seen in the Tiger Lily,

(*Lilium tigrinum*) which, when mature, detach themselves and fall to the ground, having their rootlets or fibres already formed for drawing their nourishment from the earth. The same may be seen in *Lysimachia bulbiferum*, and also in other plants that might be named.

The embryos of bulbousplants, as the Narcissus and Hyacinth, protected by their numerous coatings, resemble very much the embryo of buds protected by their lobes and scales. Bulbs like buds are formed the season previous to their developement. The bud like a bulb, if properly managed will throw out its rootlets when planted in the ground, and produce a perfect plant.

From these facts, it will appear that the analogy is good in some respects. There is, however, one important difference; the bulb contains within itself all the important functions for supporting itself. Whereas the bud without a portion of the liber and extraordinary care, will almost invariably perish.

Having been much amused of late in dissecting and examining buds of various kinds, by the aid of a microscope, it has been my desire that the attention of others might be drawn to this interesting subject; as we see in their various shapes and different protections of scales, gum, varnish, wool, hair, &c., the providence of God exhibited, in shielding their tender embryons from the rigor of the climate, and the care he exercises over the most minute but important operations of his hands. The same wonderful variety may be observed in the formation of buds as in everything else; every species differing from each other in some particular. The following observations were made about the first of February; their appearance, however, is nearly the same, until about the 10th or 20th of March, depending upon the season, and the character of the tree. It will then be noticed that interesting changes are daily taking place, especially in the aments of the Willow, Poplar, Alder and Hazlenut; each of which, though concealed from the naked eye, display their ever varying beauties in unrivalled splendor.

The buds of the Horse Chestnut, (*Æsculus hippocastanum*) may be considered as among the largest and most perfect specimens for analyzing. Those on the terminal branches are large, of an oblong shape, swelling in the middle, and abruptly tapering to a point at the end; its numerous imbricated scales lie close to the bud, the whole of which is covered with a thick coating of varnish, that renders it impervious to moisture. The bud cut lengthways with a sharp knife, shows the rudiments of the leaves and stem closely imbedded and compressed in

a woolly substance. But the appearance of the bud when cut transversely, below the swell, presents the most curious aspect. In the centre may be seen the future stem with its medulla or pith, and its tubular cells surrounded by a layer of partially organized alburnum, and bounded by the liber; in four circles round the stem the future opposite leaves, completely folded, may be discerned, of a brownish, pale green: the spaces between the circles and the covering of the bud are solidly filled with cottony substance, which by the aid of the microscope assumes the appearance of coarse wool. The whole is encircled by eight or ten coatings of scales, appearing like strips of India rubber wound around it — and, as we should suppose, as impenetrable to water. When the leaves and stem evolve from the bud, this woolly substance may be seen upon them in great abundance. It is remarkable that the whole growth of this tree in length is finished in the short space of a fortnight.

The Shagbark or Shellbark, (*Juglans squamosa*) may be distinguished from other species of the Walnut, by the shortness of the two outer scales of the bud, which extend but half their length. The buds of this tree are also large, and of a fine form, but very different from the Horse Chestnut, being entirely destitute of gum, varnish, or of wool. It is swollen in the middle, and terminates at the apex in an acuminate point: after taking off the two dry, loose scales, we find the bud enveloped by successive coatings, each coat solidly wound around those within. The outer coat, when magnified, resembles coarse seal-skin with the hair on; each successive one being clothed with softer hairs, until the embryo leaves and stem appear encompassed with the finest silk.

The flower buds of Sweet Viburnum, (*Viburnum lentago*) are terminal, about one inch long, round and full above the base, rapidly tapering off and ending in a long point; its outer covering consists of two dry scales, a little pubescent, closely united by seams on each side, from the base to the apex; beneath this are coverings of a similar description. By removing carefully these protections, the cyme of flower buds with their stems will be perceived, of a globular shape, but entirely destitute of any farther defence, semi-transparent, of a greenish white. At the base of the bud, and opposite, are two very small leaf buds of an oblong shape, not more than one sixteenth of an inch in length. Besides these, ten or a dozen incipient buds may be discovered encircling the base of the flower bud, ready to burst into activity in case of accident to the others. The lateral leaf buds are

opposite, about one eighth of an inch long, laying close to the stem, and covered similar to the flower buds; beneath the buds and on the scar occasioned by the petiole of the fallen leaf, may again be seen the ample resources of nature in the formation of numerous minute protuberances, which are no less than the first rudiments of buds.

The ament of the Swamp Willow, (*Salix eriocephala*) is enclosed in a single scale, ready to burst upon the first intimations of Spring. Upon removing this outside covering, we find the embryons secured from the severities of the season by a long silky substance. When the ament is cut transversely, we find the centre to consist of medulla or pith, partially formed alburnum, surrounded by a minute ring of liber; to which are attached closely imbricated, and thickly studded scarlet bractes or scales, thickly clad with numerous silky hairs, many times their length; beneath each bracte, are seen two minute green globules, which are the rudiments of the anthers, this being the barren ament, or from the male tree.

The aments of the Hazlenut, (*Corylus americanus*) are without an outer covering; but its imbricated scales are furnished with a woolly down and lie perfectly close.

The little aments of the common Alder (*Alnus glutinosa*) are also destitute of the brown outside scales. When viewed through the microscope, they look like the cone of the White Pine; the scales are fleshy, close, and covered by a resinous substance.

The bud of the *Ailanthus glandulosa*, which although it contains the rudiments of a leaf of the largest size, is but a small projection upon the surface of the stem; the outer covering is a pair of opposite, dry, hairy scales; the germ is enclosed by numerous alternate, opposite scales.

More inconspicuous still are the buds of the Catalpa, which are formed in a depression of the wood, having the appearance of a rose partially expanded; the yellowish brown scales representing the petals. When reduced to a point, the bud presents nothing but a mass of inorganized matter; probably the formation is not complete until Spring; it being one of the latest trees to evolve its buds.

The buds of *Bignonia radicans* are formed very much like the Catalpa; a little more elevated from the surface of the stem, but a very indistinct trace of an organization.

Well formed buds may be considered as indicating a hardy tree, while those of an opposite character the reverse. It is said that "in mild, or even in warm countries, buds have no scales, as they do not

require them. Those trees that form an exception to this observation can thrive indifferently in any climate; so that the rule holds good in all distinct cases. The scales are considered by many as imperfect leaves."

"Some have fancied that they have seen the rudiments of every part of the tree concealed in the bud."

We believe, however, that such observers must have not only powerful magnifiers, but also extraordinary vision and acuteness of perception.

ART. V.—*On the Culture and Uses of Salsify.* Communicated by Mr J. W. RUSSELL.

G. C. BARRETT, ESQ.

SIR — For the purpose of insertion in the Horticultural Register and Gardener's Magazine, I herewith present you with a few brief remarks on the culture and uses of Salsify, (*Tragopogon porrifolius,*) the cultivation of which cannot be too highly recommended; more especially to those who make it their business in supplying the Boston market with choice and rare productions.

Salsify is a native of England, and is universally esteemed there to be very wholesome and nutritious. So much so, that there are but few families that have a garden, who are without a profusion of this delicious culinary vegetable. The root, which resembles a parsnip in appearance, is white, long and tapering, and is the part most valued for culinary purposes. It is boiled and eaten like a parsnip, or parboiled, cut into slices, and fried, and dished up for the table as a sauce for boiled fowls, turkeys, &c. When sliced and fried in batter, it very much resembles in taste the oyster, whence its local name, Vegetable Oyster.

The leaves resemble those of the *Leek* in their appearance. The young tops taken from the roots in the Spring of the year, and tied up into small bunches and boiled, much resemble in taste asparagus. A few of the roots placed under a green house stage, and slightly covered with soil, would soon start to grow, which might supply the table with a good substitute for asparagus through the winter months. I am aware of every *Gardener's* understanding this subject thoroughly.

Nevertheless, this may meet the eye of some person that has not become acquainted with the growth of this particular plant, and from the perusal of this communication, might be induced to give it a fair trial, which is all that is necessary to insure *success*. And it is very probable that others having the same facilities would be stimulated to do likewise; because any person who has ground that produces fine parsneps and carrots, will be enabled to grow Salsify to great perfection. It is an astonishing fact, that this admirable article of food, so much wanted and so easily cultivated, should have been so long neglected. That Salsify is sometimes found in the market for sale, I do not attempt to deny. However, I am warranted in asserting this much: that the *demand* for this inestimable root, if good, is far greater than the supply. For I am credibly informed that there are hundreds of families in Boston, that would annually lay in a winter's stock, if it could be obtained. A deep, mellow, friable, soil is the most desirable for its growth. If it has been highly manured two or three years before wanted for this purpose, so much the better; as there will be no occasion to manure the ground at the time of cropping. The seed should be sown the first week in May in shallow drills a foot apart, covering it about an inch deep; and patting the soil close down upon the seed should not be neglected, as it is indispensably necessary for its well doing. When the plants are three inches high, thin them out to five or six inches apart, observing to keep the ground clear of weeds by frequent hoeing. In October the roots should be carefully taken up and packed in sand or soil, in a dry cellar, and can be used from October to April.

Mount Auburn, Feb. 8, 1836.

[For the Horticultural Register.]

Art. VI.—*Result of Experiments.*

Mr Fessenden — Had the results of the experiments which I made in conformity with the intention stated in my communication inserted in the Hort. Reg., Vol. I. p. 131, et seq. been satisfactory, they would have been communicated to you at an earlier period; but accident, and the extraordinary wetness of the season, prevented me from forming any conclusive opinions. However, to redeem my pledge I now send you the following statements.

On the 28th of last April, I sowed on a rich, deep, sandy loam, per-

fectly level, two rows of Knight's tall Marrowfats. These rows were each twentysix yards long, and about four feet and a half distant from each other. The seeds in the eastern half of the northern row, and the western half of the southern, were sown in the usual way, and earthed up twice. The remaining halves were sown in drills, six inches deep, and covered about three inches, leaving a hollow of three inches, during the whole growth of the plants. The last mentioned, came up a day sooner than the others, but I could see no difference in their subsequent growth. Much rain had fallen between the time of sowing and the 25th of May, when all the plants were remarkably vigorous. On this day, a workman who was carting manure into the garden, carelessly left a gate open, of which three vagrant cows took advantage, incontinently devoured more than one half of this crop of peas, and other grievous damage did, to the serious derangement of my experiment and good temper. The plants in the concave rows, were the greater sufferers, though the beasts were tolerable impartial in their selection. Contrary to my expectations, the cropt plants soon rallied, overtook those which had escaped decapitation, and ripened their seeds about the same time. The produce of all was abundant, the vines from nine to ten feet high. After a most careful examination, I was unable to decide which of the two modes of planting was preferable ;* but, as they were equally good in an unusually wet season, we may fairly conclude that had the contrary been the case, the crop in the concave or hollow rows, would have collected and retained most moisture, and consequently have been most productive.

I believe the old practice of earthing up potatoes is now very generally admitted to be injurious. A carefully conducted experiment which I made last year, proved the correctness of this opinion. My unearthed rows produced ten per cent more, and the potatoes were of a more equal size and of fairer sample.

I planted Mangel Wurtzel at one foot, one and a half, and two feet distances apart. The aforesaid four footed trespassers consumed a great part of all these, but of the survivors, the average size of the plants, one foot from each other, was as great as that of the roots which were farther separated. The whole crop was excellent; several roots weighing from ten to fourteen pounds. The soil was remarkably rich, and had only been two years in cultivation.

I intend this year to plant fifteen acres of Capt. Chandler's early

* The crop was gathered from time to time for family use.

twelve rowed corn on a deep, warm, light loam, rather sandy, which has never yet been ploughed, and will endeavor to ascertain, by experiment the most advantageous distance at which the hills of this species can be planted in such a soil. The result shall be sent to the New England Farmer. I am, Sir, respectfully yours,

February 12, 1836. QUIVIS.

ART. VII.—*Some Remarks on Temperature Considered in Relation to Vegetation and the Naturalization of Plants.* Communicated to the Mass. Hort. Society by Mr A. J. DOWNING, of Newburgh, N. Y.

(Concluded from page 72.)

THE choice of situation and aspect is another important consideration in the naturalization of plants. We never place a plant of a delicate nature in aspects exposed to the utmost inclemencies of the weather — in situations open to the fury of the coldest winds, or the raging of the most boisterous storms. We naturally seek on the contrary to place them in a sheltered situation, in an aspect favorably disposed to catch the genial rays of the sun in summer, and to prolong as much as possible the duration of that favorable season. Hence the use of walls and trellises, and the choice of particular aspects best calculated to favor the object in view. In England, many fruits, require a wall, to come to maturity, which ripen perfectly with us as standards, and although walls are as yet but little used here, we can easily imagine that many partially tender trees and shrubs, might be brought to perfection upon them which the inclemency of our winters forbids us to cultivate in the open air.

Apart from shelters of this description, the character of the soil and situation, demands the utmost attention. Soils that are of a cold, clayey and heavy texture, particularly if they retain water, are totally unfit for the growth of tender plants. They should be planted in a light, friable and porous soil, as dry as the peculiar constitution of the plant will admit, for not only is a wet soil more liable to be deeply frozen, but also the exposed parts of the plants which grow in it. Even hardy and naturalized trees are often severely affected by the cold in a soil saturated with moisture. The philosophy of this is well known to every physiologist. In moist soils, the plant is surcharged with watery fluid, the annual depositions of wood are large, but not

firm and well calculated to resist the intensity of cold; the leaves are longer completing their articulations with the stem, and as a consequence of this the young shoots are continued longer in a growing state, and remain succulent and unripened at the approach of winter, when the first severe frost destroys their vitality. Beside these facts, it is well known that water (and the sap of plants in its primary state is but little more) is a better conductor of heat and cold, than either the woody fibre of trees, or the particles of air which occupy in some measure the place of watery fluid, in a well ripened branch. Susceptibility to injury by frost in ligneous plants, is therefore increased with the presence of watery fluid, and diminished by the presence of firm well ripened annual layers of wood. A knowledge of this fact is of the greatest importance to the agriculturist, in the selection of soils and situations for crops which are but imperfectly naturalized. We may illustrate this by remarking, that plantations of the Chinese Mulberry, (*Morus Multicaulis*, a tree that is justly exciting the greatest attention in this country, and which deserves every effort at complete naturalization,) which were situated upon dry gravelly soils, even if in cold aspects, withstood almost perfectly the extreme rigors of the last winter in the Eastern States, when extensive fields of the same tree, in moist soils, were entirely cut down to the ground in a great majority of instances.

In Europe, the advantages of a dry soil for the naturalization of plants are well known, both theoretically and practically, and many plants that formerly required the protection of a green-house, are by the proper choice of dry and porous soils, inured to the severity of ordinary winters. So well is this subject understood in England and France, that Camellias and Oranges have, in favorable situations, been quite naturalized. In the latter country it is quite remarkable how many comparatively tender exotics, generally protected in green-houses, are preserved perfectly in large barn-like buildings, without the aid of fire, during the whole winter. "The secret of this," Loudon observes, "lies in the dryness of the air of France, and in the gardener having previously *by withholding water, matured the growth of the leaves and ripened the wood;* in short in his having reduced the plants to a dormant state before housing them." In cases where it is desirable that the utmost pains should be taken, as in the case of new and rare shrubs, creepers, &c. the gardener will facilitate the object in view by trenching the soil and artificially producing a dry subsoil by underlaying the surface mould with a strata of stones or

very coarse gravel: thereby checking too vigorous a growth, causing a small but firm annual deposit of wood, and placing the vegetable in a state of rest long before the winter frosts commence.

A variation of this mode of naturalizing, consists in placing many tender kinds of herbaceous plants, and small shrubs upon dry rock-work or aggregations of stones mingled with soil, where they are found to thrive perfectly. We observed in the Botanic Garden at Cambridge, Mass. an *Azalea indica*, and a species of *Erica*, that had braved the exceedingly low temperature of nearly 30 deg. [Fah.] below zero, the past winter, having been planted for several years previous in a mass of rock-work, where they had annually matured their wood in the most perfect manner. Those persons who are acquainted with the comparative delicacy of these plants, in a climate so cold as that of Massachusetts, will appreciate at once how thoroughly they had become naturalized by this simple process.

Naturalization by external protection, next deserves our attention. It is a common practice to protect many shrubs and trees with a covering of straw or mats at the approach of winter, during their young state, knowing that as they become stronger and more bulky in size, they will also acquire additional hardihood. This is an effectual practice in its way, and we believe that considered as an auxiliary in naturalizations, some useful hints may be gathered in relation to it from recent discoveries made in the physiology of plants. It was formerly the opinion of some *savans*, among others Hunter, Schœpf and Salome, that vegetables having a circulating system of fluids and a sort of respiration analagous to those of animals, ought to have therefore, and had, a property of developing a certain quantity of caloric or heat within themselves. Recent experiments, however, made by Schutzer and Halder, and more latterly by Dr Goeppert,* of the Botanic Garden of Breslau, seems to have proved, that "vegetables appear to retain a certain medium temperature, which cannot however be considered as originating from heat evolved by the functions of the plant, but can be satisfactorily explained by a reference to the *bad conducting power* of the vegetable fibre, and the wood by which the temperature of the surrounding ærial strata, penetrates but slowly into the interior of the plant."† What we would wish to deduce directly from this is, that many woody plants, on which it is proposed to try acclimatising experiments by external protection, might in many instances with more

* *Uber die Wærme-Entwicken lung in den Pflanzen*, &c., Breslau, 1830.

† Jameson's *Philosophical Journal*.

chance of success, be reared under shelter *until they attained considerable thickness of stem* and induration of wood, when they would from their increased non-conducting capacity, be much better able to withstand the cold, if protected a few seasons, than the same species, if reared from infancy in the open air. As an illustration of the advantages which size and diameter of stem give to tender trees in withstanding rigorous cold, we may mention that we saw in the nurseries at Philadelphia the following trees, viz.: *Acacia julibrissin, Pinckneya pubens, Magnolia grandiflora*, and *G. eliptica, Gordonia pubescens, &c.*, of some twenty or more years growth, that had survived uninjured during the past winter (unparalleled for depression of temperature for fifty years past), the extraordinary low temperature of 12 deg. or more below the zero of Fah., or 44 deg. below the freezing point. That this was owing in a great measure to their having become naturalized in that locality, there can be no doubt. But the ordinary lowest temperature of Philadelphia is some 20 or 25 deg. above that of the last winter, and we conceived that these trees survived so perfectly the increase of cold only by virtue of their large size, thickness of bark and wood, and the consequent thickness of non-conducting substance, to protect the juices of the plant and the vital organs from the effects of frost.

The simplest and perhaps most effectual method of preserving plants by external protection, is to be found in the well known practice of enveloping either the whole or a portion of the stem and branches with a covering of dry straw, pieces of Russia matting, or moss and hay, firmly bound with straw ropes. For small plants, boxes or empty casks, with a light in the top, (or which is preferable, in the north side,) are often used. The branches of evergreen trees, as the pine, hemlock and spruce, where they can be procured, are excellent materials for this purpose. It is, we believe, customary in some parts of France where the fig is extensively cultivated, to bend the branches down to the earth every autumn and cover them with a thin layer of soil: in this way the fig, though a tender tree, can be cultivated to a great extent in the northern districts.

We strongly suspect, after all that has been said of protection externally against the influence of cold, that the evil effects which plants suffer, arise not so much from the *congelation* of the exposed parts of vegetables, as the *rapid and hasty thawing* to which they are often exposed in this climate by the sudden influence of the sun after continued cold. Who has not witnessed some tender tree on the north

side of a wall, some few herbaceous plant in the shade of a hedge or fence, or even the grass in the northern exposure, preserving their greenness and vitality through the chilly season of winter, when their equally tender neighbors exposed to the sun, have suffered severely, and even perished entirely? The cause of all this is probably that the sudden glancing of the warm sun upon the frozen branches, leaves or roots of the tender vegetable, *causes a sudden dilation in the crystals of ice* that are formed in those parts, which consequently in their expansion distend and rupture the spiral vessels, and other parts filled with semi-fluid matter, and destroys those organs of the plant necessary to its vitality; in short, something takes place analogous in its effects to the bursting of the blood-vessels in the animal system. This is very striking in the splitting of the stems of large trees that occasionally happens in cold climates, and is often attended with a loud noise.

In all northern countries where the earth receives an annual coating of snow, the husbandman is well aware how beneficial to his fields is this protecting mantle of nature — so much so, that in this country it is a common saying among farmers, that a covering of snow is equal in its beneficial effects to a coat of manure. The benefits in many cases are not exaggerated, for the snow not only prevents the loss of the internal heat of the earth by radiation, and thus protect vegetation upon its surface, but it has also a powerful influence in shielding the exposed parts of plants from the alternations of freezing and thawing, and the injury they would receive from the sudden action of the sun when in a frozen state. The results are not less beneficial, upon a smaller scale, to the horticulturist, while it affords him also a hint of the efficacy of slight coverings over plants near the surface of the earth, as in this manner many of the herbaceous and stemless plants of the south may be preserved in security during our winters.* We should not forget to mention in this brief essay the idea, first put in practice we think by the enlightened M. Soulange Bodin, of the Horticultural Institute near Paris, of attempting naturalizations by grafting partially tender species of plants upon hardy species of the same or a kindred genus, able to withstand the effects of cold.† The success of his experiments at the time the results were made known was flattering. His method was to graft upon large

* A great number of the beautiful varieties of China Roses, Carnations, &c., may be preserved in this way by slight coverings of straw, even in the cold climate of Canada.

† Annales de Fromont, tome iv. p. 309.

robust stocks, at some considerable distance from the ground, availing himself thereby of the protecting properties of the stock, and of the power which he conceived it to possess of maintaining its temperature by the communication which its deep roots had with the warmer soil. We believe this mode of naturalization might be very effectual south of the Potomac, where the soil is never very deeply frozen, in acclimating trees and shrubs of still warmer climates, and we recommend it to the notice of the horticulturist in all cases where practicable in this region.*

It is proper to remark here, that persons about to make experiments in naturalizing plants, should, when they choose a locality, endeavor to avoid all low valleys, especially if abounding with springs or streams of water, as the most unfavorable of all situations for the attainment of the object in view, on account of their being more subject to early and late frosts in autumn and spring, and to intense coagulation in the depths of winter. Extensive slopes, however, by the sides of large rivers and other bodies of water, are excellent sites for the purpose. Some of our large inland lakes, those immense bodies of water which are rarely frozen over, have an astonishing influence in ameliorating the severity of the winters in their neighborhoods, and many tender trees and plants might be naturalized in their vicinity, and thus become adapted through their progeny to much colder situations.

Such are the principal facts already known, which should claim the attention of all persons whom pleasure or interest may induce to attempt the naturalization of plants in this country. Although it is a practice which has hitherto proceeded nearly at random, and has been rather the amusement of the amateur cultivator than an object of careful attention, we are persuaded that with a portion of the assiduity directed toward it, that the other branches of horticultural science have received, it may become the means not only of a great increase of gratification to the horticulturist, in the acquisition which the garden will receive of beautiful and valuable flowering trees, shrubs and vegetables, but also that it may to a certain degree be productive of very considerable advantages to the agriculture of our country. The United States embrace almost every desirable variety of climate, and we believe that in time the greater majority of useful and beautiful productions of the vegetable kingdom may be successfully produced

* We observe the Messrs Prince & Sons advertise trees of the Morus Multicaulis grafted upon the White Mulberry, which they state to be hardier than if upon their own roots.

in our own territory. We confidently anticipate the period when the vine and the silk culture shall be carried to maturity in the extreme northern portions of our country, as the olive, the cocoa, the palm, the plantain and banana, the cochineal-cactus, and even the tea-plant, will in time, undoubtedly, flourish in perfection in the southern portions of it. With so extensive a range of climates, the field for experiments is equally extensive; varieties of the different productions may be originated, suitable for numerous localities and latitudes; and soils and situations may be chosen, best adapted to the naturalization and cultivation of the different plants. Nature has already furnished us with the most extensive variety of vegetation to be found in any temperate region, and it is only necessary for art to second her intentions and our country may boast of all that is most delightful and gratifying to man among the products of the soil.

In the mean time we look to our horticultural and agricultural societies, composed as they are of the learned, scientific and practical portion of the community, who are devoted to these subjects, for the increase and dissemination of information relating to them; for the report of such experiments and facts as have already been made and ascertained, and the encouragement of new and more extensive trials and experiments in the different sections, soils and climates of our fertile and highly diversified country.

[From Harrison's Floricultural Cabinet.]

ART. VIII.—*A Description of Roses.* By Mr T. RIVERS, Nurseryman, Sawbridgeworth, Hertfordshire.

(Continued from page 75.)

PERPETUAL OR AUTUMNAL ROSES.

NAME.	COLOR.	FORM AND CHARACTER.
Blanche Lamoroux,	purple shaded rose,	cupped and very double.
1 Billiard,	rose,	expanded and double.
1 Belle d'antonine,	pale flesh,	expanded and double.
1 Belle Italienne,	deep rose,	cupped, large and double.
1 Belle de Trianon,	lilac rose,	cupped and double.
Camailleux remontante,	lilac rose,	cupped and double.
1 Clair Duchatelet,	purplish red,	globular and double.
3 Crimson perpetual. Rose du roi, or Lee's. Crimson perpetual,	light crimson,	cupped and very double.

1 Constancy,	pale flesh,	cupped, very large and double.
Diaphane,	crimson,	globular and double.
1 Delice d'hiver	bright rose,	expanded, large and double.
1 Desespoir des amateurs,	lilac rose,	compact, small, and very double.
Flore,	bright rose,	compact and very double.
Ferox,	purplish deep rose,	globular, large and very double.
4 Four seasons, blush,	rose,	cupped semi double.
3 Four seasons, white,	white,	expanded and double.
2 Four seasons, Monstrous, or Bullee,	pale rose,	globular and large.
2 Four seasons, thornless,	pale rose,	expanded and double.
Gloire des perpetuelles,	deep rose,	compact, large, and very double.
2 Grand perpetual, or Fabert's,	bright rose,	globular, very large and double.
1 Grande et Belle,	deep purplish rose,	globular, very large and double.
1 Henriette Boulogne,	pale blush,	compact and large.
1 Jean Hachette,	lilac rose,	globular, large and double.
2 Josephine Antoinette,	rose,	cupped and very double,
2 La Mienne,	deep rose,	compact and very double.
2 Louis Philippe,	dark purplish crimson,	expanded and very large.
1 Lodoiska,	pale blush,	globular, large and double.
1 Madame Feburier,	rose,	cupped, large, and very double.
1 Ma Delice, or Douce Melee,	pale rose,	cupped and very double.
Maria Louise,	pale rosy centre,	globular and large.
1 Pompone four seasons,	pale flesh,	compact, very small, and double.
1 Pulcherie,	purplish red,	globular and double.
1 Preval,	pale rose,	expanded and double.
4 Pæstana or scarlet four seasons,	bright crimson,	cupped semi double.
2 Perpetuelle d'Angers,	very pale fl'sh,	expanded and very large.
3 Palmire, or blush perpetual,	pale rose,	compact and very double.
Perpetua nova.		
Panache de Girardon, or striped perpetual,	flesh striped with red,	cupped and double.
1 Palotte Picote,	pale flesh,	compact and double.
2 Portlandica carnea,	pale rose,	cupped semi double.
2 Portlandica grandiflora	deep rose,	globular, very large and double.
2 Queen of perpetuals,	pale flesh,	cupped and very double.
Royal perpetual,	bright rose,	compact, very large and double.
1 Saint Barthdemy,	purplish rose,	cupped and semi double.
4 Scotch perpetual,	blush,	cupped and double.
3 Stamwell perpetual,	pale flesh,	expanded and double.

Sixth of June,	deep rose,	compact and very double.
1 Triomphe de Vitry,	bright rose,	expanded and double.
1 Volumineuse,	blush,	globular, very large and double.

This division rapidly increases in interest. I have not attempted to arrange them according to their Botanical affinities, but merely as to their habit of blooming in the autumn; most of the pale flowered varieties, with pubescent leaves originated from those old damask roses, the red and white monthly, Stamwell and Scotch Perpetual, from the Scotch rose hybridised; the crimson Perpetual, or Rose du Roi, from the Portlandica plena. This superb variety was raised from seed in 1812, in the gardens of the palace of St Cloud, by the flower gardener, M. Jucket, under the direction of La Compte Lelieur, the Royal Gardener, and by him named Rose du Roi. The Rosa Pæstana, which I suspect is the parent of some of our fine varieties, is mentioned by Eustace in his Classical Tour, as growing among the ruins of the Temple of Pæstum, and enlivening them with its brilliant autumnal flowers. A clump or border of Perpetual roses will soon be indispensable in every well furnished flower garden. They are perhaps the most desirable of all the pleasing families of Rosa. Like their prototypes, they are highly fragrant, and, if possible, more so in September, October, and November, than in June. As every shoot in most of the varieties produces bloom, the soil cannot be too rich; for with these, luxuriant growth will be sure to give abundance of flowers. A good practice would be to cut off all the bloom buds in June, and shorten the shoots to about half their length, then water them with manured water in July and August; this will make them shoot and bloom most luxuriantly all the autumn.

HYBRID CHINA ROSES.

NAME.	COLOR.	FORM AND CHARACTER.
2 Adolphe Cachet,	purplish red,	cupped and very double.
3 Adsire,	rose,	cupped and very double.
2 Ancelin,	purplish rose,	globular, very large and double.
2 Adelaine de Bourbon,	mottled bright rose,	reflexed, large and double.
1 A fleur Marbre,	mottled dark crimson,	compact and very double.
2 Bon Genevieve,	purp. crimson shaded,	imbricated and very double.
4 Pizarre de la Chine,	crimson purp.,	globular and double.
1 Brennus,	red carmine,	cupped, very large and double.
2 Belle de Bengale,	bright rose,	globular, small and double.

4 Brown's superb blush,	blush, red centre,	globular, very large and double.
3 Brown's celestial,	pale blush,	globular and very double.
4 Blairii,	bright rose,	globular, and blooming in large clusters.
Beauty of Billiard,	scarlet,	globular and double finely shaped.
1 Beranger,	bright purplish rose,	cupped and very double.
Coccinea superba, or Juillet 29,	scarlet,	cupped, very large aad double.
1 Coupe d'Amour,	very bright rose,	cupped and very double.
2 Clair de Cressac,	cherry red,	cupped and double.
2 Camuset Carne,	bright rose,	cupped, large and very double.
2 Coronation,	shaded purple,	imbricated and very double.
2 Chatelaine,	rosy lilac,	globular and double.
2 Carmin feu,	brig't crimson,	cupped and very double.
1 Cardon,	purp. crimson,	compact and very double.
2 Celine,	rose,	cupped and very large.
2 Carre de Boisgelin,	shaded purple,	expanded and very double.
2 Coutard,	bright rose,	globular, large and double.
2 Colonel Fabvier,	bright rose,	cupped, large and very double.
1 Cymodocee,	scarlet,	globular and double.
2 Delaagee,	purple,	cupped, large and double.
2 Duchess d'Angouleme de Lisle,	shaded rose,	compact and very double.
1 Duke of Devonshire,	pale rose, lilac stripe,	imbricated large and double.
1 Daubenton,	bright crimson shaded,	cupped large and double.
2 Duchess de Montebello,	brig't crimson,	reflexed and double.
2 Duc de Choiseul,	purplish rose,	globular, very large and double.
2 Duc de Choiseul ponctue,	rose, spotted white,	globular and very double.
Eliza Flemming,	rose,	cupped, small and very double.
1 Eucharis,	brig't crimson,	cupped and very double.
2 Ethereal,	purple,	imbricated and double.
2 Fulgens, or Chalton,	fiery crimson,	globular, large and very double.
2 Fleurette,	bright rose,	cupped and very double.
1 Consalve Cardon,	brig't purplish,	imbricated, large and double.
1 General Pajol,	delicate rose,	cupped and very double.
2 General Thiers,	dark velvet crimson,	reflexed and very double.
General Lamarque,	black crimson,	globular, large and double.
4 George the Fourth, (Rivers'),	velv't crimson,	globular, large and very double.
1 Hybrid Gracilis,	rosy purple,	compact and double.
1 Hybrid Blanc,	pure white,	cupped and very double.

Hybrid Celestial,	bright red,	globular and double.
1 Hybrid Stadtholder,	pale rosy centre,	cupped, large and very double.
3 Holmes' Mandarin,	rosy lilac shaded,	cupped and very double.
1 Hypocrate,	deep rose,	cupped, very large and double.
King of Roses or hybrid panache,	rosy lilac white stripe,	globular, very large and double.
1 Legouve,	purp. crimson,	globular, large and very double.
1 La Seulisienne,	pale blush,	compact and very double.
4 La Tourterelle or Parny,	dove color,	cupped and very double.
1 La Harpe,	deep rose,	globular and double.
1 Lady Stuart,	delicate blush,	globular, very large and double.
2 La Ceusette,	bright red,	cupped and double.
1 Lara,	deep purplish rose,	cupped and double.
1 Leontine Fay,	rosy lilac,	globular, very large and double.
1 Lilac Queen,	deep lilac,	imbricated and very double.
2 Las Cassas,	bright rose,	globular, very large and very d'ble.
2 Las Cassa d'Angers,	bright red,	globular and very double.
2 Morning Star,	purplish red,	cupped, very large and double.
2 Monteau,	dark purplish crimson,	globular and large.
2 Miaulis,	dark purple,	globular and double.
2 Miralba,	black crimson,	compact and very double.
2 Ne plus ultra, or Gloire des hybrids,	fine bright red,	globular, large and very double.
3 Oberlin,	brig't crimson,	compact and very double.
2 Pirolle,	purp. crimson,	cupped and double.
2 Pourpre Panache, or Adelaide,	dark crimson shaded,	compact and very double,
1 Princess Augusta,	purple crim.	expanded and double.
Queen of Beauty,	fine scarlet crimson,	cupped, large and very double.
1 Reine de Belgique,	rosy lilac,	globular, very large and double.
1 Riego,	rosy lilac,	cupped and double.
1 Rosine Dupont.		
3 Roi de Prusse,	violet purple,	cupped and very double.
2 Susette,	dark crimson,	reflexed and very double.
3 Sebastiani,	dark crimson,	globular and double.
1 Souvenir d'une Mere,	bright rose,	cupped, very large and double.
2 Triomphe de Laffay,	pure white,	cupped and very double.
2 Thornless Violet,	dark velvet crimson,	cupped and very double.
1 Triomphe de Guerin,	delicate pale rose,	globular, very large and double.
1 Triomphe d'Angers,	brilliant crim., oft'n strip'd,	globular, very large and double.

2 Toutain,	velvet purple,	cupped and very double.
1 Titus,	violet purple,	globular and very double.
3 Victor Tracy,	dark crimson,	cupped, very large and double.
2 Victor Hugo,	rosy lilac,	globular, very large and double.
2 Volney,	rosy blush,	imbricated and very double.
4 Wellington, (Lee's),	purp. crimson,	globular and double.

From the very distinct habit of these Roses, they have generally been called par excellence Hybrid Roses, but as we have been careful to insert none but what are between the China Rose, (*Rosa indica*), and Rosa Gallica, we now call them Hybrid China Roses, a distinctive name quite necessary, as Hybrids from other Roses are every season coming into existence. They are all very beautiful, and have that pleasing, glossy, sub-evergreen foliage, peculiar to the China Rose, but make a great deviation from that family, in not being perpetual bloomers; in this division are some of the most beautiful Roses known, and among them, George the Fourth, which I raised from seed, may rank among the best, these are also all very robust, and will grow and bloom well in the most unfavorable Rose soils. Their peculiar habits and vivid colors, render them particularly well adapted for standards.

ART. IX.—*A Visit to Mr Cushing's Conservatory.*

SIR — Having just visited the Conservatory of J. P. Cushing, Esq., Belmont Place, Watertown, it appears to me that a short notice of some of the treasures of the vegetable kingdom, now in floral splendor there, would be interesting to many of your readers, both in this vicinity and in the more distant parts of the United States, to which I am aware the circulation of your Register extends.

Astrapea Wallichii, placed by De Candolle and Don in the *Dombeyaceæ* tribe of the family Byttneriaceæ; but by Lindley, in the same tribe of the family Sterculiaceæ. It is a native of Madagascar. Don says, "Astrapea and some genera related to it are amongst the most elegant plants in the world," and in another place, "Astrapea Wallichii is one of the finest plants ever introduced into Britain; when in flower nothing can exceed it in beauty." The expectation produced by this language is certainly not altogether satisfied by the appearance of the flowers, which are of a light scarlet color and hang

pendant on a long elegant stalk (peduncle); many crowded together in an umbel, this being girded round by a many leaved involucel has the resemblance of a hanging scarlet ball; which although shewy cannot be termed elegant, inasmuch as the flowers are so close to each other that their separate forms cannot be distinguished — it is however a rare and valuable specimen, and well merits a place in this extensive and choice collection of tropical plants. No doubt, in its native region, where the tree is about 20 feet high, these numerous scarlet globose umbels hanging in every direction must form a glorious sight.

Combretum purpureum. Combreteæ tribe of Combretaceæ. This truly beautiful amongst the ornaments of the stove had two or three out of nearly a dozen of its panicles of bright scarlet flowers in perfection, it is a quick growing climber, revels in heat, and when in a healthy state, like this specimen, must always be the chief attraction in every collection; like its predecessor it is a native of Madagascar, and has not been many years introduced into Europe. Having seen and admired it there on its first appearance, I was highly gratified to recognise it here in so flourishing a state.

That magnificent flower, *Solandra grandiflora*, was on the point of opening in all its splendor; those who have seen Bignonia radicans, now called *Tecoma*, can form some idea of the shape alone, but this flower is three or four times larger and of a delicate whitish yellow.

Amaryllis regina, aulica or vittata and formosissima, with Crinum amabile and Euphorbia Poinsettii, just in departing glory, Tritomia crocata, Oxalis, Justicia speciosa, several rare pelargoniums, jasmines, roses, Peonia moutan,and many other beautiful flowers, whose names have escaped me, filled up the stove. A few pots of vines, on the coiling system, looked healthy and were just bursting into bloom.

The Conservatory in the centre was not less ornamented with flowers; Rhododendron arboreum, shone conspicuous. Azalea indica alba and phenicea, Schizanthus, Cineraria, Eupatorium, Roses, Antholyza, are but a few of the delights with which it was thronged. The delicious scented Iris persica now in full beauty and fragrance in my parlor window would not have been inconspicuous, however, amongst all these beauties. We have seen several imported here; when more known it will no doubt become common, as it is a cheap bulb in Europe.

The Camellias were rather scarce; from the appearance of the plants, the cause was probably rather the liberality of the owner than the fault of the plants or the gardener.

To those who are able and have the taste to form and enjoy such establishments as this, stern winter is deprived of half its rigors, shorn of half its length and tediousness. I felt as happy as if entering on the joys of spring, until the deep deep snow on leaving this assemblage of charming plants, recalled me to my senses. I could not but remember the line of Cowper, the poet,

"Who loves a garden loves a greenhouse too."

Yours, THEOPHRASTUS.

ART. X. *Notices of Foreign Works.*

WE have before us, ten numbers, for 1835, of the Botanic Garden, an interesting work, edited by B. Maund, F. L. S. Published in London.

This beautiful little work is issued in monthly numbers; each number containing the description and colored figures of four ornamental hardy plants, occupying eight pages. It has been in existence eleven years, and we should infer, from the remarks of the editor, well sustained. Two extra pages were added three years since, called the Auctarium, "as a means of registering miscellaneous directions and discoveries, which could not conveniently be combined under the regular subjects of the work."

The last year, a Floral Register, containing two pages more, was added. The object of this, was to give "monthly, every requisite particular of nearly twenty newly introduced or interesting plants, belonging either to the stove, the greenhouse, or the open ground." Each of these plants is illustrated by a wood cut.

Its typographical execution is of the highest order. The figures are mostly reduced in size, drawn from living plants, and colored in a most exquisite manner, true to nature. What adds value undoubtedly to the work, it is "patronized by Her Most Gracious Majesty the Queen." We have no doubt but what the patronage of some of our own "Nature's Queens" would be extended to it also, if they could but see a specimen of the work. We are not more pleased with the mechanical part of the work, than with the pleasing style of its contents. The dry details of botanical descriptions are avoided as much as possible, and relieved by remarks that lead the mind "from

nature up to nature's God." The following extracts will give the reader a specimen of its character.

"*Silene laciniata.* Jagged-petal Catchfly. Class, Decandria. Order, Trigynia. Natural order, Caryophylleæ. Native of Mexico. Height, 1½ feet. Flowers in July and August. Perennial. Introduced in 1823." The flowers of this plant are red; its petals, deeply cut into four segments. "The genus Silene acquired its name from the salvia like fluid that is found on some of its species.

The *Silene laciniata* is an ornamental plant, but not very hardy. Its habit is best adapted, during summer, to a warm border, and to a dry frame protection during winter. In the greenhouse it is liable to be drawn and become weakly. As it produces seed but sparingly, cuttings should be struck every summer, and planted in fresh sandy loam, mixed with a small portion of decayed leaves. Many species of Silene possess much beauty: indeed, the whole may be considered very interesting, notwithstanding some of them have rather diminutive flowers. It is a most extensive genus, comprehending, according to Don's system, not less than two hundred and fifty six species. Its near relation, Dianthus, has also an hundred and twenty five species, and Arenaria has an hundred and forty seven: hence, it appears that from three genera, alone, of the natural order Caryophylleæ, a collection of more than five hundred plants can be formed.

It may not be unimportant, occasionally, to view the extent of the means, and fertility of the sources, whence the botanist can draw his gratifications.

In considering the great number of plants thus united, as we have just seen, by such close affinities, yet each one distinct from its congener, the mind can but be strongly impressed with the magnificence of that design of the divine Creator, of which we here catch a glimpse in the detail of so inconsiderable portion of his care. It must be kept in view that nature, in the aggregate, presents us with unity of design. We usually examine isolated scraps, to compare their differences; when, however, we consider all creation is comprehended under one regularly graduated whole; that it exhibits, step by step, a progressive developement, from the lowest quality of inorganic matter, up to man, the most perfect of animated earthly creatures, how utterly incapable are we of tracing these gradations, and almost invisible distinctions, through the ascending scale of creation.

These considerations should be impressed on the mind of the young naturalist. None can comprehend all the laws of nature, but the out-

line of her work is more obvious. We may read the index to her operations, although the details are not unfrequently in secret characters. The whole may be seen as composed of an alphabet of simple elements — elements which combine into matter as letters into words: matter combines into beings, as words into sentences; and again, as series of sentences make chapters, so series of beings constitute classes, and of these the incomprehensible book of creation is compiled, and perfected by the hand of the original Lawgiver."

We find in the July number a figure and description of *Acanthus spinosus*. Class, Didynamia. Order, Angiosperma. Natural order Acanthaceæ. Hardy perennial. Three feet high. A native of the south of Europe, having been cultivated nearly two hundred years as an ornamental border plant, with purple and white labiate flowers, and spiny leaves. Its description, but more particularly the tradition connected with it, will be read with interest, undoubtedly, by most persons.

"This generic name is derived from the Greek, Akantha, a spine; a name sufficiently applicable to the plant under consideration. Its specific name has also the same reference.

All the species of Acanthus are plants of tolerable strong growth, with roots that strike deeply into the soil. Some of them are very tenacious of life; springing from portions of the root which happen to be broken from the main plant. In this way it may be readily propagated, a circumstance that would naturally lead us to expect its more general distribution in gardens and ornamental grounds.

The tradition connected with the Acanthus, regarding its having given the idea of the capital of the Corinthian column, should not be forgotten. Whether this be correct or otherwise, it is unnecessary to inquire; certain it is, that architecture owes much of its beauty — much of its perfection, to flowers, foliage and trees. Nature in the garden, in the park, and the wide expanse of country scenery, affords one of the best assistant schools of pure taste; not only to the architect in his outlines, and in his enrichments, but to artists connected with almost every branch of manufacture in which embellishment is demanded."

The history of the origin of the Corinthian order, which might possibly be contrived to give an interest to the invention, though so often repeated and so well known, may, nevertheless, be here told once more as a pleasing anecdote on ancient manners.

"A young maiden of Corinth having died, her mother or nurse collected in a basket the toys which she had been fond of while alive, and carried them to her grave, where she left the basket covered with

a tile, to preserve its contents from the weather. The basket happened to be set upon the root of an Acanthus. The plant being thus depressed in the middle, its leaves and stalks spread outwards, and grew up around the sides of the basket, till they were bent down by the tile which lay projecting over its top. At that time, Callimachus the sculptor, chancing to pass by the grave, and being pleased with the agreeable appearance of the foliage, and novelty of the form, he converted it to the purpose of architecture; and having made some columns of a more delicate proportion than had been used before, he adopted the basket and leaves of the Acanthus for the capital; and thus established the symmetry and ornaments of the Corinthian order.

"It is by no means improbable that architecture may have owed the origin of its arch, pointed and circular, to the natural outline of trees. The wooded avenue, and rows of forest trees not unfrequently represent arches of the most magnificent character; the contemplation of which can never fail to interest and to gratify the cultivated mind."

Gilia tricolor is figured in the number for August. Class, Pentandria. Order, Monogynia. Natural order, Polemoniaceæ. This pretty annual, originally from California and introduced into England in 1833, has already found its way into many of our own gardens, having been cultivated the last season by ourselves and others.

"This is one among the prettiest hardy annuals, not only of recent introduction into the country, but that is known in our gardens. It is, too, the more pleasing from the variation of tint seen among its delicate flowers, some of them being white."

Pretty as this flower is, we fear it will not find favor with most cultivators; something more showy is wanted to suit the common taste. The flowers are disposed in panicles, with a yellow eye, surrounded by a purple ring, bordered by pale blue or white. It does not exceed one foot in height. "From its humble stature and neat growth it is peculiarly suited for culture in masses; a style of planting showy flowers which produces a striking effect, where it can be pursued on a tolerably extensive scale."

The following are figured and described in the various numbers:

Lathyrus rotundifolius. Round leaved Lathyrus. Class Diadelphia: Order Decandria. Natural order Leguminosæ. This is said to be a showy, free flowering perennial species very little known, which has been cultivated for some time in the Oxford Botanic Garden. Like Lathyrus latifolius, its peduncles are many flowered, but not so tall a plant, being about two feet high. The flowers are deep pink, inclining to purple.

Many of the plants figured in the Botanic Garden, although they are hardy in England, would not stand our winter. We feel confident that it is not the case with this, and hope we shall speedily see it in our collection.

" *Lobelia Tupa.* Class Pentandria. Order Monogynia. Natural order Lobeliaceæ. A native of Juan Fernandez. Height six feet. Flowers in September and October. Introduced in 1824." The flowers scarlet orange. " Several varieties of this very handsome ornamental plant have lately appeared in our gardens. They grow with great luxuriance. Much has been said regarding its virulently poisonous effects, but these statements have wholly emanated from the 'Journal des Observations,' of Feuillee, who travelled in South America. He says the smell of the flowers cause severe vomitings, and the milky juice of the plant, if it touch the eye, occasions blindness. The first assertion is, certainly, incorrect."

There would be no probability of keeping this most beautiful plant in the open ground, as it is more tender than most of the species. Those that have green-houses will find no difficulty in preserving it, and perhaps, it may be kept in a cellar in pots through the winter.

Campanula grandiflora. Class Pentandria. Order Monogynia. Natural order Campanulaceæ. This beautiful Campanula we have in our collection, flowering for the first time last season. It is about a foot high, producing its large deep blue, open bell shaped flowers in June and July. It increases slowly at the root and yields but few seeds; it will not, therefore, be very plenty with us at present. The most congenial soil is peat and loam, in a cool situation. Very hardy, as we might suppose from the fact, that it is a native of Siberia.

Campanula excisa, is another perennial species of this large genus, of humble stature, with fine blue drooping, deeply cut corollas; from Switzerland; five inches high. " This beautiful little species produces an abundance of flowers. It is well suited to the foreground of the parterre, and to artificial rock-work."

Campanula hederacea. Ivy leaved Campanula, is still more diminutive than the last, its height not exceeding three inches. Flowers in June and July, erect, small, light blue. A close growing plant; its foliage forming a green tuft on the surface of the soil. A sandy peat and loam soil is recommended as a suitable soil, with a rather shady situation. This little plant is a native of England.

Nuttallia papaver. Class Monadelphia. Order Polyandria. Natural order Malvaceæ. This is a new perennial from Louisiana, flowering from July to October. The flowers of the figure are a purple

crimson, and resemble in shape and color *N. digitata*, which we have seen at Cambridge Botanic Garden. The genus was named in honor of Thomas Nuttall, Esq. formerly professor of botany at Cambridge. We give the following extracts from its history, &c.

"Seeds of this very showy plant were first sent by Mr Drummond, from the Southern States of North America, to this country, and distributed among several collections; and although this took place so lately as the year 1833, yet in the last year, 1834, it might have been found in almost every nursery of repute in Great Britain. Such are the rapidly increasing means by which the rapidly increasing taste for botanical pursuits is met and gratified. It is productive of pleasure, in every point of view, to see so healthy a national appetite, receiving daily, as it were, such delightful and wholesome stimulants from foreign lands, — novel as well as exotic." "Every new plant is received as a new and unthought of gift, and carries with it all its consequent delight."

"The Nuttallia papaver is, indeed, a very splendid accession to our gardens, and we have not the least doubt but it will be received as an inhabitant, and not as a visitant only. It is at present, so much a stranger, that we scarecly can offer any certain rules of management. It appears, however, to be of very easy culture, when grown in pots, in a mixture of loam, peat, and sand; in which it will flower freely, from July through autumn. It produces several flowering stems from the crown of the root, and may be divided, and thereby increased, with facility; which cannot be effected with other species of this genus.

"There can be no doubt but plants turned into the borders in the spring, will flower in great luxuriance during a great part of the summer, and also perfect seeds if artificially fertilized. Till its habits and powers of resisting cold are thoroughly ascertained by experience, it will of course be prudent to give it a little protection against frosty weather. It appears, notwithstanding, to be hardy, and, it may be hoped, will prove so; still its habitat would lead us to suspect that it is fully proof against the inclemency, or rather variability, of our climate. It would be advantageous, in several respects, if foreign collectors would register both the latitude and altitude of the native situation of every newly discovered plant. As men of ability are engaged in this pursuit, such advantage is of easy attainment."

Geranium pratense, (flore variegata). Class Monadelphia. Order, Decandria. Natural order, Geraniaceæ. We do not recollect ever seeing this fine variety of English meadow Crane's bill, but from the figure and description imagine it to be very desirable.

It is said that "its flowers partake of a degree of delicacy by which it greatly surpasses in effect its more common blue congener. Its flowers vary much in the portion of color which they display, some being nearly all blue, whilst others are produced completely white."

Geranium angulatum. Angular stalked Crane's bill. This species is a native of Europe, and has been cultivated since 1789. A perennial of easy culture, eighteen inches high, with a profusion of pink flowers in June. We have this in our collection.

"The Geranium angulatum, from its numerous flowers, is highly ornamental. It may be appropriately planted among low shrubs, or strong herbaceous plants; and it will succeed in rather shady places, which renders it oftentime a desirable plant. Divisions of the roots afford sufficient increase."

Linum monogynum. One styled flax. Class Pentandria. Order Pentagynia. Natural order Lineæ. A hardy perennial with white flowers in July and August; eighteen inches high, from the South of Europe, cultivated since 1831. Said to be a delightful species; its habits are luxuriant, and its numerous flowers showy. It proved hardy in the Birmingham Botanic Garden, in a bed of sandy peat. It must be raised from seeds or cuttings, as it does not admit of frequent division.

Our own beautiful little Houstonia cœrulea, is very prettily and correctly figured in this work; but from these half a dozen flowers, we could obtain but a faint idea of its beauty as it is seen profusely scattered over the ground, with its dense tufts of delicate pale blue flowers in early spring, "adorning every mossy bank or shorn meadow, and presenting themselves in all directions, like the eyes of Argus; seeming almost as handfuls of pale scattered flowers of the Lilac which had come too early to maturity."

Art. XI.—*Answer to Query.*

In reply to the query on page 74, last number,—they will bloom if planted early; or it will be better to place them in a box or boxes with earth, in a warm cellar, and transplant in the spring. I have succeeded this way, and have every year removed Hyacinths, &c. even after the formation of the flower buds. It should be done with two transplanting trowels, retaining as much earth as possible round each root.

A Subscriber.

Art. XII.—*Flowers in Bloom in February, in the Green House of the Messrs Winship, Brighton.*

Acacia armata,
" longifolia,
" lophanta,
Alonsoa acutifolia,
Aloe variegata,
Arctotis laciniata, vel superba,
Azalea indica alba,
" " purpurea pleno,
" " phœnicea,
" purpurea,
Bryophyllum calycinum,
Calla ethiopica,
Camellia alba simplex,
" alba pleno,
" anemone flora,
" atrorubens,
" Granvilli,
" hexangularis,
" pæoniæflora,
" sasanqua rosea,
" variegata,
" rubra pleno,
" pompone, or Kew blush, with other varieties.
Canna angustifolia,
" coccinea,
Chloranthus inconspicuous,
Cineraria cruenta,
" platinifolia,
Cyclamen persicum,
Daphne odora,
" variegata,
Diosma alba,
" liliata,
Epacris grandiflora,
Erica arborea,
" verticillata,
" herbacea,
Erica mediterraneana,
" elegans, or speciosa,
Eupatorium elegans,
Heliotropium peruvianum,
" grandiflorum,
Hoitzia coccinea,
Hibbertia volubilis,
Hyacinthus botryoides,
" moschatum,
Hermannia althæifolia,
Indigofera australis,
Justicia cerulea,
" paniculata,
Jasminum revolutum,
Kennedia monophylla,
Lupinus arboreus,
Melianthus major,
Mesembryanthemum barbatum,
" linguæforme.
Ornithogalum grandiflorum,
Othonna pectinata,
Oxalis elongata,
" rosea,
Pæonia papaveracea,
Passiflora alata,
Pittosporum tobira,
" undulatum,
Plectranthus fruticosus,
Primula sinensis,
" v. alba,
Rhododendron arboreum,
Ruellia persicæfolia,
Rubus rosæfolius,
Salvia africana,
" fulgens,
" splendens,
Sparmannia africana,
Teucrium fruticans,
Tradescantia discolor,
Westringia rosmarinacea,
Vinca rosea,
Verbena cerulea.

Art. XIII.—*Miscellaneous Matters.*

Clarification with Charcoal.—The effects of charcoal in clarification are both curious and important. They were first noticed by M. Lowity, of Petersburgh, and have for the most part been amply confirmed by succeeding observers, although the precise cause of these remarkable changes has not been satisfactorily ascertained. All that is essential for this purpose is, that the charcoal should be in fine powder and very dry; hence the only preparation requisite is to pulverize some well burnt common charcoal, and then heat it in a covered crucible to a glowing red, till it ceases to give out an inflammable vapor. If it is not employed immediately, it ought to be kept in a ground stopped glass bottle, and may then be preserved unimpaired to any length of time. The effects of this prepared charcoal are very striking. Being mixed with common vinegar or any kind of wine, a thick froth rises to the surface, and the liquors after filtration are found to be as limpid as water. The filthiest and most putrid ditch water is in like manner rendered perfectly clear, inodorous and insiped; and rancid oils are also deprived of their smell and taste by repeated filtration through this prepared charcoal. Hence also its peculiar efficacy as a dentifrice; it is sufficiently hard to remove concretions from the teeth without injuring the enamel, while it neutralizes and destroys for a time any fœtor which may arise from a carious tooth.—*Rees Cyclopedia.*

Cherry Tree Gum.—The gum that exudes from the trunk and branches of the cherry tree is said to be equal to gum arabic. Hasselquist relates that during a siege more than one hundred men were kept alive for two months nearly, without any other sustenance than a little of this gum taken into the mouth sometimes and suffered gradually to dissolve.—*English pa.*

Vital Principle of Seeds.—A small portion of Royal Park of Bushy was broken up some time ago, for the purpose of ornamental culture, when immediately several flowers sprung up, of the kinds which are ordinarily cultivated in gardens; this led to an investigation, and it was ascertained that this identical spot had been used as a garden not later than the time of Oliver Cromwell, more than one hundred and fifty years before.—*Monthly Mag.*

Erratum. — In the last number, page 74, for "Fernal Grape," read Ferrol.